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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/080,909	05/19/1998	GEORGE ISHIKAWA	1075.1013-CC	9908

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EXAMINER
MOSKOWITZ, NELSON

ART UNIT	PAPER NUMBER
3663	

DATE MAILED: 06/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/080,909	Applicant(s) ISHIKAWA ET AL.	
	Examiner Nelson Moskowitz	Art Unit 3663	

-- The MAILING DATE of this communicati n appears on the cov r sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *164-184* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *164-184* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

1. Applicant's letter received April 17, 2002 has been entered. An action on the pending application follows.

2. The text of those section of Title 35 U.S. Code not included in this action can be found in a prior Office action.

3. Newly entered claims 164-184 are rejected under 35 U.S.C. 103(a) as being unpatentable over Antos et al.

In determining obviousness, the following factual determinations are made:

a. first, the scope and content of the prior art:

b. second, the difference between the prior art and the pending claims;

c. third, the level of skill of a person of ordinary skill in the art; and,

d. fourth, whether other objective evidence may be present, which indicates obviousness or nonobviousness. Graham v. John Deere Co., 282 U.S. 17-18, 148 USPQ 459, 466-67(1966). Objective evidence includes a long felt but unmet need for the claimed invention, failure of others to solve the problem addressed by the claimed invention, imitation or copying of the claimed invention, and commercial success due to the features of the invention and not other factors. See e.g., Simmons Fastener Corp. v. Illinois Tool Works, Inc., 739 Fed. 1573, 1574-76, 222 USPQ 744, 745-747 (Fed. Cir. 1984).

Examining the scope and content of the prior art we find the following:

a) Antos et al discloses (Fig. 14) a multi-stage optical amplifier including a first amplifier (OFA-2) amplifying a signal, a dispersion compensator (DC fiber) given to the

amplified optical signal, and a second amplifier (OFA-3) amplifying the dispersion compensated optical signal.

b) In addition, Antos et al teaches (see, *inter alia*, Fig. 2) the use of WDM signaling as it provides propagation of simultaneous signals, thus increasing bandwidth and the amount of information which can be transmitted at one time.

Secondly, under Deere, the difference between this prior art and the pending claims lies in the combination of WDM signal transmission with the DC fiber between amplifiers as disclosed by Antos et al.

Third, under Deere the level of ordinary skill in this art may be determined by the analysis of the Court as set forth in Environmental Design Ltd. v. Union Oil Co. 713 F.3d 693, 218 USPQ 865-69 (Fed. Cir. 1983) cert. denied, 464 U.S. (1984), where the court listed these factors relevant to the determination of the level of ordinary skill: type of problems encountered in the art, prior art solutions, rapidity of innovations, sophistication of technology, and educational level of the active worker in the field.

The types of problems encountered in the art involved signal dispersion and the loss of power due to the use of DC fibers. Innovation in this field has been very fast as can be seen from virtual birth of this field in the 1970's, to its present highly complex and sophisticated status.

Prior art solutions include using DC fibers and plural EDF amplifiers in a single system .

Skilled artisan generally have graduate level education and over seven (7) years of experience, as can be seen from published articles in the major journals of this field. See, inter alia, the references of record.

To date, no secondary consideration (objective evidence) has been presented. Therefore, as the aforesaid prior art teaches the benefits of using WDM signaling, the use of WDM signals in a multiple amplifier system with DC fiber between the amplifiers would have been obvious to one skilled in this art.

A further indication of the obvious nature of the aforesaid combination is the expectancy of the beneficial results from using WDM, DC fibers, and plural amplifiers. This follows just as unexpected beneficial results would be evidence of unobviousness In re Novak, 16 USPQ 2d 201, 2043 (Bd. App. 1990).

As the aforesaid prior art is known by optical physicists to provide the respective benefits and improvements as set forth above, the physicist would have been led to make the obvious combination of these teachings in order to obtain the benefits this prior art taught and an artisan would typically readily recognize.

Although there is no explicit teaching to combine the aforesaid teachings, it is noted that an artisan would generally look to optimize signal communication systems which would otherwise carry only a single frequency. Such optimization ordinarily leads to lower costs, and better signal transmission in a very competitive business.

As the aforesaid prior art is known by optical physicists to provide the respective benefits and improvement as set forth above, the physicist would have been led to make the obvious combination of these teachings in order to obtain the benefits this prior art taught and an artisan would typically readily recognize.

5. Claims 164-184 are rejected for obvious type double patenting for the same reasons given in Section 5 of the first Office action, based on claims 3-19 of U.S. Patent No. 5,602,666.

6. Reference AK previously cited by Applicant and considered by the Examiner is noted.

7. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

NELSON MOSKOWITZ
PRIMARY EXAMINER